

OMB Circular A-109
Major System Acquisitions
April 5, 1976

To: The Heads of Executive Departments and Establishments
Subject: Major System Acquisitions

1. -- Purpose.

This Circular establishes policies, to be followed by executive branch agencies in the acquisition of major systems.

2. -- Background.

The acquisition of major systems by the Federal Government constitutes one of the most crucial and expensive activities performed to meet national needs. Its impact is critical on technology, on the Nation's economic and fiscal policies, and on the accomplishment of Government agency missions in such fields as defense, space, energy and transportation. For a number of years, there has been deep concern over the effectiveness of the management of major system acquisitions. The report of the Commission on Government Procurement recommended basic changes to improve the process of acquiring major systems. This Circular is based on executive branch consideration of the Commission's recommendations.

3. -- Responsibility.

Each agency head has the responsibility to ensure that the provisions of this Circular are followed. This Circular provides administrative direction to heads of agencies and does not establish and shall not be construed to create any substantive or procedural basis for any person to challenge any agency action or inaction on the basis that such action not in accordance with this Circular.

4. -- Coverage.

This Circular covers and applies to:

- a. Management of the acquisition of major systems, including:

- * Analysis of agency missions
- * Determination of mission needs
- * Setting of program objectives
- * Determination of system requirements
- * System program planning
- * Budgeting
- * Funding
- * Research
- * Engineering
- * Development
- * Testing and evaluation
- * Contracting
- * Production
- * Program and management control
- * Introduction of the system into use or otherwise successful achievement of program objectives.

b. All programs for the acquisition of major systems even though:

(1) The system is one-of-a-kind.

(2) The agency's involvement in the system is limited to the development of demonstration hardware for optional use by the private sector rather than for the agency's own use.

5. -- Definitions.

As used in this Circular:

- a. **Executive agency** (hereinafter referred to as agency) means an executive department, and an independent establishment within the meaning of sections 101 and 104(1), respectively, of Title 5, United States Code.
- b. **Agency component** means a major organizational subdivision of an agency. For example: The Army, Navy, Air Force, and Defense Supply Agency are agency components of the Department of Defense. The Federal Aviation Administration, Urban Mass Transportation Administration, and the Federal Highway Administration are agency components of the Department of Transportation.
- c. **Agency missions** means those responsibilities for meeting national needs assigned to a specific agency.
- d. **Mission need** means a required capability within an agency's overall purpose, including cost and schedule considerations.
- e. **Program objectives** means the capability, cost and schedule goals being sought by the system acquisition program in response to a mission need.

f. **Program** means an organized set of activities directed toward a common purpose, objective, or goal undertaken or proposed by an agency in order to carry out responsibilities assigned to it.

g. **System design concept** means an idea expressed in terms of general performance, capabilities, and characteristics of hardware and software oriented either to operate or to be operated as an integrated whole in meeting a mission need.

h. **Major system** means that combination of elements that will function together to produce the capabilities required to fulfill a mission need. The elements may include, for example, hardware, equipment, software, construction, or other improvements or real property. Major system acquisition programs are those programs that

- (1) are directed at and critical to fulfilling an agency mission,
- (2) entail the allocation of relatively large resources, and
- (3) warrant special management attention. Additional criteria and relative dollar thresholds for the determination of agency programs to be considered major systems under the purview of this Circular, may be established at the discretion of the agency head.

i. **System acquisition process** means the sequence of acquisition activities starting from the agency's reconciliation of its mission needs, with its capabilities, priorities and resources, and extending through the introduction of a system into operational use or the otherwise successful achievement of program objectives.

j. **Life cycle cost** means the sum total of the direct, indirect, recurring, nonrecurring, and other related costs incurred, or estimated to be incurred, in the design, development, production, operation, maintenance and support of a major system over its anticipated useful life span.

6. -- General Policy.

The policies of this Circular are designed to assure the effectiveness and efficiency of the process of acquiring major systems. They are based on the general policy that Federal agencies, when acquiring major systems, will:

- a. Express needs and program objectives in mission terms and not equipment terms to encourage innovation and competition in creating, exploring, and developing alternative system design concepts.
- b. Place emphasis on the initial activities of the system acquisition process to allow competitive exploration of alternative system design concepts in response to mission needs.
- c. Communicate with Congress early in the system acquisition process by relating major system acquisition programs to agency mission needs. This communication should follow the requirements of Office of Management and Budget (OMB) Circular No. A-10 concerning information related to budget estimates and related materials.

- d. Establish clear lines of authority, responsibility, and accountability for management of major system acquisition programs. Utilize appropriate managerial levels in decision making, and obtain agency head approval at key decision points in the evolution of each acquisition program.
- e. Designate a focal point responsible for integrating and unifying the system acquisition management process and monitoring policy implementation.
- f. Rely on private industry in accordance with the policy established by OMB Circular No. A-76.

7. -- Major System Acquisition Management Objectives.

Each agency acquiring major systems should:

- a. Ensure that each major system: Fulfills a mission need. Operates effectively in its intended environment. Demonstrates a level of performance and reliability that justifies the allocation of the Nation's limited resources for its acquisition and ownership.
- b. Depend on, whenever economically beneficial, competition between similar or differing system design concepts throughout the entire acquisition process.
- c. Ensure appropriate trade-off among investment costs, ownership costs, schedules, and performance characteristics.
- d. Provide strong checks and balances by ensuring adequate system test and evaluation. Conduct such tests and evaluation independent, where practicable, of developer and user.
- e. Accomplish system acquisition planning, built on analysis of agency missions, which implies appropriate resource allocation resulting from clear articulation of agency mission needs.
- f. Tailor an acquisition strategy for each program, as soon as the agency decides to solicit alternative system design concepts, that could lead to the acquisition of a new major system and refine the strategy as the program proceeds through the acquisition process. Encompass test and evaluation criteria and business management considerations in the strategy. The strategy could typically include:
 - * Use of the contracting process as an important tool in the acquisition program
 - * Scheduling of essential elements of the acquisition process
 - * Demonstration, test, and evaluation criteria
 - * Content of solicitations for proposals
 - * Decisions on whom to solicit
 - * Methods for obtaining and sustaining competition
 - * Guidelines for the evaluation and acceptance or rejection of proposals
 - * Goals for design-to-cost
 - * Methods for projecting life cycle costs
 - * Use of data rights

- * Use of warranties
- * Methods for analyzing and evaluating contractor and Government risks
- * Need for developing contractor incentives
- * Selection of the type of contract best suited for each stage in the acquisition process
- * Administration of contracts.

g. Maintain a capability to:

- * Predict, review, assess, negotiate and monitor costs for system development, engineering, design, demonstration, test, production, operation and support (i.e., life cycle costs)
- * Assess acquisition cost, schedule and performance experience against predictions, and provide such assessments for consideration by the agency head at key decision points
- * Make new assessments where significant costs, schedule or performance variances occur
- * Estimate life cycle costs during system design concept evaluation and selection, full-scale development, facility conversion, and production, to ensure appropriate trade-offs among investment costs, ownership costs, schedules, and performance
- * Use independent cost estimates, where feasible, for comparison purposes.

8. -- Management Structure.

- a. The head of each agency that acquires major systems will designate an acquisition executive to integrate and unify the management process for the agency's major system acquisitions and to monitor implementation of the policies and practices set forth in this Circular.
- b. Each agency that acquires -- or is responsible for activities leading to the acquisition of -- major systems will establish clear lines of authority, responsibility, and accountability for management of its major system acquisition programs.
- c. Each agency should preclude management layering and placing nonessential reporting procedures and paperwork requirements on program managers and contractors.
- d. A program manager will be designated for each of the agency's major system acquisition programs. This designation should be made when a decision is made to fulfill a mission need by pursuing alternative system design concepts. It is essential that the program manager have an understanding of user needs and constraints; familiarity with development principles, and requisite management skills and experience. Ideally, management skills and experience would include:
 - * Research and development
 - * Operations
 - * Engineering
 - * Construction

- * Testing
- * Contracting
- * Prototyping and fabrication of complex systems
- * Production
- * Business
- * Budgeting
- * Finance.

With satisfactory performance, the tenure of the program manager should be long enough to provide continuing and personal accountability.

e. Upon designation, the program manager should be given budget guidance and a written charter of his authority, responsibility, and accountability for accomplishing approved program objectives.

f. Agency technical management and Government laboratories should be considered for participation in agency mission analysis, evaluation of alternative system design concepts, and support of all development, test, and evaluation efforts.

g. Agencies are encourage to work with each other to foster technology transfer, prevent unwarranted duplication of technological efforts, reduce system costs, promote standardization, and help create and maintain a competitive environment for an acquisition.

9. -- Key Decisions.

Technical and program decision normally will be made at the level of the agency component or operating activity. However, the following four key decision points should be retained and made by the agency head:

- a. Identification and definition of a specific mission need to be fulfilled, the relative priority assigned within the agency, and the general magnitude of resources that may be invested.
- b. Selection of competitive system design concepts to be advanced to a test/demonstration phase or authorization to proceed with the development of a noncompetitive (single concept) system.
- c. Commitment of a system to full-scale development and limited production.
- d. Commitment of a system to full production.

10. -- Determination of Mission Needs.

a. Determination of mission need should be based on an analysis of an agency's mission reconciled with overall capabilities, priorities and resources. When analysis of an agency's mission shows that a need for a new major system exists, such a need should not be defined in equipment terms, but should be defined in terms of the mission, purpose, capability, agency components involved, schedule and cost objectives, and operating constraints. A mission need may result from a deficiency in existing agency capabilities or the decision to establish

new capabilities in response to a technologically feasible opportunity. Mission needs are independent of any particular system or technological solution

b. Where an agency has more than one component involved, the agency will assign the roles and responsibilities of each component at the time of the first key decision. The agency may permit two or more agency components to sponsor competitive system design concepts in order to foster innovation and competition.

c. Agencies should, as required to satisfy mission responsibilities, contribute to the technology base, effectively utilizing both the private sector and Government laboratories and in-house technical centers, by conduction, supporting, or sponsoring:

- * Research
- * System design concept studies
- * Proof of concept work
- * Exploratory subsystem development
- * Tests and evaluations.

Applied technology efforts oriented to system developments should be performed in response to approved mission needs.

11. -- Alternative Systems.

a. Alternative system design concepts will be explored within the context of the agency's mission need and program objectives -- with emphasis on generating innovation and conceptual competition from industry. Benefits to be derived should be optimized by competitive exploration of alternative system design concepts, and trade-offs of capability, schedule, and cost. Care should be exercised during the initial steps of the acquisition process not to conform mission needs or program objectives to any known systems or products that might foreclose consideration of alternatives.

b. Alternative system design concepts will be solicited from a broad base of qualified firms. In order to achieve the most preferred system solution, emphasis will be placed on innovation and competition. To this end, participation of smaller and newer businesses should be encouraged. Concepts will be primarily solicited from private industry; and when beneficial to the Government, foreign technology, and equipment may be considered.

c. Federal laboratories, federally funded research and development centers, educational institutions, and other not-for-profit organizations may also be considered as sources for competitive system design concepts. Ideas, concepts, or technology, developed by Government laboratories or at Government expense, may be made available to private industry through the procurement process or through other established procedures. Industry proposals may be made on the basis of these ideas, concepts, and technology or on the basis of feasible alternatives which the proposer considers superior.

d. Research and development efforts should emphasize early competitive exploration of alternatives, as relatively inexpensive insurance against premature or preordained choice of a system that may prove to be either more costly or less effective.

- e. Requests for alternative system design concepts proposals will explain the mission need, schedule, cost, capability objectives, and operating constraints. Each offeror will be free to propose his own technical approach, main design features, subsystems, and alternatives to schedule, cost, and capability goals. In the conceptual and less than full-scale development stages, contractors should not be restricted by detailed Government specifications and standards.
- f. Selections from competing system design concept proposals will be based on a review by a team of experts, preferably from inside and outside the responsible component development organization. Such a review will consider:
 - (1) Proposed system functional and performance capabilities to meet mission needs and program objectives, including resources required and benefits to be derived by trade-offs, where feasible, among technical performance, acquisition costs, ownership costs, time to develop and procure; and
 - (2) The relevant accomplishment record of competitors.
- g. During the uncertain period of identifying and exploring alternative system design concepts, contracts covering relatively short time periods at planned dollar levels will be used. Timely technical reviews of alternative system design concepts will be made to effect the orderly elimination of those least attractive.
- h. Contractors should be provided with operational test conditions, mission performance criteria, and life cycle cost factors that will be used by the agency in the evaluation and selection of the system(s) for full-scale development and production.
- i. The participating contractors should be provided with relevant operational and support experience through the program manager, as necessary, in developing performance and other requirements for each alternative system design concept as tests and trade-offs are made.
- j. Development of subsystems that are intended to be included in a major system acquisition program will be restricted to less than fully designed hardware (full-scale development) until the subsystem is identified as a part of a system candidate for full-scale development. Exceptions may be authorized by the agency head if the subsystems are long lead time items that fulfill a recognized generic need or if they have a high potential for common use among several existing or future systems.

12. -- Demonstrations.

- a. Advancement to a competitive test/demonstration phase may be approved when the agency's mission need and program objectives are reaffirmed and when alternative system design concepts are selected.
- b. Major system acquisition programs will be structured and resources planned to demonstrate and evaluate competing alternative system design concepts that have been selected. Exceptions may be authorized by the agency head if demonstration is not feasible.

c. Development of a single system design concept that has not been competitively selected should be considered only if justified by factors such as urgency of need, or by the physical and financial impracticality of demonstrating alternatives. Proceeding with the development of a noncompetitive (single concept) system may be authorized by the agency head. Strong agency program management and technical direction should be used for systems that have been neither competitively selected nor demonstrated.

13. -- Full-Scale Development and Production.

a. Full-scale development, including limited production, may be approved when the agency's mission need and program objectives are reaffirmed and competitive demonstration results verify that the chosen system design concept(s) is sound.

b. Full production may be approved when the agency's mission need and program objectives are reaffirmed and when system performance has been satisfactorily tested, independent of the agency development and user organizations, and evaluated in an environment that assures demonstration in expected operational conditions. Exceptions to independent testing may be authorized by the agency head under such circumstances as physical or financial impracticability or extreme urgency.

c. Selection of a system(s) and contractor(s) for full-scale development and production is to be made on the basis of

- (1) system performance measured against current mission need and program objectives,
- (2) an evaluation of estimated acquisition and ownership costs, and
- (3) such factors as contractor(s) demonstrated management, financial, and technical capabilities to meet program objectives.

d. The program manager will monitor system tests and contractor progress in fulfilling system performance, cost, and schedule commitments. Significant actual or forecast variance will be brought to the attention of the appropriate management authority for corrective action.

14. -- Budgeting and Financing.

Beginning with FY 1979 all agencies will, as part of the budget process, present budgets in terms of agency missions in consonance with Section 201(i) of the Budget and Accounting Act, 1921, as added by Section 601 of the Congressional Budget Act of 1974, and in accordance with OMB Circular A-11. In so doing, the agencies are desired to separately identify research and development funding for:

- (1) The general technology base in support of the agency's overall missions,
- (2) The specific development efforts in support of alternative system design concepts to accomplish each mission need, and
- (3) Full-scale developments.

Each agency should ensure that research and development is not undesirably duplicated across its missions.

15. -- Information to Congress.

- a. Procedures for this purpose will be developed in conjunction with the Office of Management and Budget and the various committees of Congress having oversight responsibility for agency activities. Beginning with FY 1979 budget each agency will inform Congress in the normal budget process about agency missions, capabilities, deficiencies, and needs and objectives related to acquisition programs, in consonance with Section 601(i) of the Congressional Budget Act of 1974.
- b. Disclosure of the basis for an agency decision to proceed with a single system design concept without competitive selection and demonstration will be made to the congressional authorization and appropriation committees.

16. -- Implementation.

All agencies will work closely with the Office of Management and Budget in resolving all implementation problems.

17. -- Submissions to Office of Management and Budget.

Agencies will submit the following to OMB:

- a. Policy directives, regulations, and guidelines as they are issued.
- b. Within six months after the date of this Circular, a time-phased action plan for meeting the requirements of this Circular.
- c. Periodically, the agency approved exceptions permitted under the provisions of this Circular.

This information will be used by the OMB, in identifying major system acquisition trends and in monitoring implementations of this policy.

18. -- Inquiries.

All questions or inquiries should be submitted to the OMB, Administrator for Federal Procurement Policy. Telephone number, area code, 202-395-4677.

\Signed\
Hugh E. Witt
Administrator For Federal Procurement Policy

Approved:

\Signed\
James T. Lynn
Director